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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,211

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Dong-Hoon Lee

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EXAMINER

LEJA, RONALD W

ART UNIT

PAPER NUMBER

2836

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,211	Applicant(s) LEE, DONG-HOON	
	Examiner RONALD W. LEJA	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/13/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. The recommendation for the labeling of Prior Art for Figure 2 stems from the P.A. Reference, (KR10-2001-9566) provided by Applicant. It seems that they are the exact same figures. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 1, 3 and 6 are objected to because of the following informalities: The language "that are objects of removal of electrostatic charges" in lines 2 and 3, "that worker may not be bombed by radiation" in lines 9 and 10 and "and soft x-ray tube with the soft x-ray tube" in lines 13 and 14 of Claim 1 are considered awkward. In line 5 of Claim 3, "FET" should be "FETs". In line 2 of Claim 6, "tubes" should be "tube".

Appropriate correction is required.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 5, 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 has a lot of possibly confusing language which should be addressed so as to allow the claim to be easily read. For example, how is an anode voltage generating part feedback through a sensor? This same type of language appears throughout the claim. In addition, in line 7, it recites current is feedback through a tube current sensor, however, above that the tube sensor was recited as feeding back current. How does Claim 8 add anything to Claim 1? What is meant by the last two lines of Claim 5; "and fixing ceramic soft x-ray tube"? In lines 4-6, of Claim 9, should "and ionizing gaseous molecules directly to remove electrostatic charges in inert gases too" be positioned after "and ionizing the surrounding gases near the charged body"? In line 18 of Claim 9, what "efficiency" is referred to by "prevents the efficiency from dropping"? In Claim 10, what is meant by "in case of attaching a filament"? What does Claim 11 have to do with the x-ray tube manufacturing method?

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over (KR10-2001-9566) in view of Hirano et al. (5,949,849) and Ohmi et al. (5,750,011).

As stated above, (KR10-2001-9566) illustrates in Figure 3, the exact same Figure as Applicant's Figure 2, and thus discloses an electrostatic charge remover having a door (210) with interlock switch (220) (for Claim 2), a head part (100), a soft x-ray protecting part (200) and a power controlling part (300). The Examiner finds English

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terms throughout the Korean text indicating use of a high voltage transformer and pulse width modulation (PWM) with a pulse signal driver. Hirano et al. teach an x-ray electrostatic charge remover having a soft x-ray tube housed within a protective case and voltage generation of 9.5kv. The vacuum x-ray tube (8) interacts with the housing to remove heat. Ohmi et al. teach soft x-ray generation for charge neutralization by ionizing gases surrounding charged bodies and relying upon wavelengths of 1-10s Angstroms (for Claim 1). The window material is taught as being Tungsten (W); the tungsten helps to achieve the electromagnetic wave in the soft x-ray region. See Col. 5, lines 42-68. It is therefore, the opinion of the Examiner that it would have been obvious to incorporate the teachings of Hirano et al. and Ohmi et al. as a means to produce electrostatic removing soft x-rays, having a protected tube wherein the protecting part helps in heat removal and utilizing (W) for the window material and the 1-10 Angstrom wavelength range so as to be able to achieve the soft x-ray region while down sizing in the overall device size. Ohmi et al. teach an electrostatically shielded casing to prevent high voltages on the inside from coming to the outside and prevent human bombardment (Col. 12, lines 15-17 & 36-45). The shielding case can comprise stainless steel having iron. Therefore, it would have been obvious to utilize materials, such as iron, for the casing as a means to prevent human bombardment of the x-rays. As far as 2000mm maximum distance, such specifics would have been obvious as a matter of balancing size of the design, power consumption and overall anticipated applications, such as, wafer chip electrostatic charge removal, wherein the wafer processing chamber has space constraints.

Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over (KR10-2001-9566) in view of Hirano et al., Ohmi et al. and Smith et al. (5,528,652).

Claims 3-5 are drawn to PWM, half bridge made of FETs and feedback control. Supra, The Korean Reference discloses PWM, Hirano et al. teach operation with voltage generation of 9.5 kv and Ohmi et al. teach use of tungsten (W) for the window material and wavelength of 1-10s Angstroms, but the references are somewhat silent with respect to feedback control. However, Smith et al. teach an x-ray which allows for programmable variable control wherein a high voltage transformer (282) is used, high voltage doubling rectifiers (284), FET half bridge (292) along with filament current feedback and tube voltage feedback. See Col. 9, lines 38-50, Col. 10, lines 47-52, Col. 11, lines 24-57 and Col. 15, lines 1-14. In view of the teachings, it is the opinion of the Examiner that it would have been obvious to incorporate the teachings of feedback for the various parameters, such as, filament current, tube voltage and tube current as a means to be able to optimize performance for the particular application-at-hand and be allowed to adjust performance for other applications, thereby increasing the application of the design.

Claims 9-11 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a Statement of Reasons for the Indication of Allowable Subject Matter: Although Bristow (3,023,492) teaches certain aspects pertaining to the method of making of the claimed combination of Claim 9, it is clear that none of the Prior Art of Record anticipates the combination. Furthermore, it is the opinion of the Examiner that

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only with hindsight would it have been obvious to incorporate the teachings of Bristow with those of x-ray tube teachings so as to try and meet the claimed combination of Claim 9 which includes such specific limitations as utilizing silk screening of Mo-Mn paste on a ceramic tube, utilizing filler metal of Ag of 73% and Cu of 27% over the anode surface, coating W over the Be window plate and performing high vacuum brazing with a vacuum furnace at 900 degrees C.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD W. LEJA whose telephone number is (571)272-2053. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Elms can be reached on (571)272-2800. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ronald W Leja/

Ronald W Leja
Primary Examiner
Art Unit 2836

/rwl/

March 26, 2009